Postgres - Install on Redhat 9

To install the `pgvector` extension (the popular open-source vector similarity search extension for PostgreSQL, which provides the `vector` data type and operators) on **Red Hat Enterprise Linux (RHEL) 9** with **PostgreSQL 16**, follow these steps.

`vector.control` is the control file that comes bundled with the `pgvector` extension — it's not a separate extension. The extension name is simply **`vector`**.

Recommended Method: Install via PGDG Repository (Easiest & Recommended)

The official PostgreSQL Yum Repository (PGDG) provides pre-built RPM packages for `pgvector` on RHEL 9.

1. **Add the official PostgreSQL repository** (if not already added):
   ```bash
   sudo dnf install -y https://download.postgresql.org/pub/repos/yum/reporpms/EL-9-x86_64/pgdg-redhat-repo-latest.noarch.rpm
   ```

2. **Disable the built-in RHEL PostgreSQL module** (to avoid conflicts):
   ```bash
   sudo dnf -qy module disable postgresql
   ```

3. **Install PostgreSQL 16** (if not already installed):
   ```bash
   sudo dnf install -y postgresql16-server postgresql16-devel
   ```

   - Initialize the database (only if this is a fresh install):
     ```bash
     sudo /usr/pgsql-16/bin/postgresql-16-setup initdb
     sudo systemctl enable --now postgresql-16
     ```

4. **Install pgvector for PostgreSQL 16**:
   ```bash
   sudo dnf install -y pgvector_16
```

```

This installs the extension files (including `vector.control`, `vector--*.sql`, and `vector.so`) into the correct PostgreSQL 16 directories.

### Alternative: Compile from Source (if you prefer or need a specific version)

If the RPM is not available or you want the latest development version:

1. Install dependencies:
   ```bash
   sudo dnf install -y git make gcc postgresql16-devel
   ```

2. Clone and build:
   ```bash
   cd /tmp
   git clone --branch v0.8.1 https://github.com/pgvector/pgvector.git
   cd pgvector
   make
   sudo make install
   ```

   (Use the latest tag from https://github.com/pgvector/pgvector/releases instead of `v0.8.1` if desired.)

Enable the Extension in Your Database

1. Connect to your PostgreSQL 16 database (as superuser):
   ```bash
   sudo -u postgres psql
   ```

   Or connect to a specific database:
   ```bash
   psql -U postgres -d your_database_name
   ```

2. Create the extension (run this in every database where you want to use vectors):
   ```sql
   CREATE EXTENSION IF NOT EXISTS vector;
   ```

3. Verify it's installed:
   ```sql
   \dx
   ```
   ```

You should see `vector` listed.

Or check the version:
```sql
SELECT vector_version();
```

Troubleshooting Tips
- If you get `could not load library "/usr/pgsql-16/lib/vector.so"`, verify the file exists and has correct permissions.
- If using a custom PostgreSQL install, ensure `pg_config` points to the right version.
- For multiple PostgreSQL versions, always use the `_16` suffix in package names (e.g., `pgvector_16`).

This should get you up and running with vector support on PostgreSQL 16 on RHEL 9. Let me know if you run into any errors!

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